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Research questions

- How do different institutional groups of actors shape technological emergence through inter-organisational networks?
- How does the role of institutional groups in inter-organisational networks evolve over the emergence process?

Conceptual framework

- Science and Technology Policy  
Emerging technologies as technology capable of changing the the status quo (e.g. Rotolo et al. 2015RP, Small et al. 2014RP)
- (Evolutionary) Economics  
Technological trajectories/paradigms (e.g. Dosi 1982RP), lock-in and path dependence (e.g. David 1985AER)
- Science and Technology Studies (STS)  
Socio-technical regimes, visions, expectations and directionality of technological developments (e.g. Geels 2002RP, Stirling and Scoones 2009ES)
- The role of inter-organisational networks  
Inter-organisational relationships as enabling actors to engage with the ‘problematisations’ of an emerging technology (Blume 1992)

Innovation is “commonly found in the interstices between firms, universities, research laboratories, suppliers, and customer” (Powell 1990: 118)

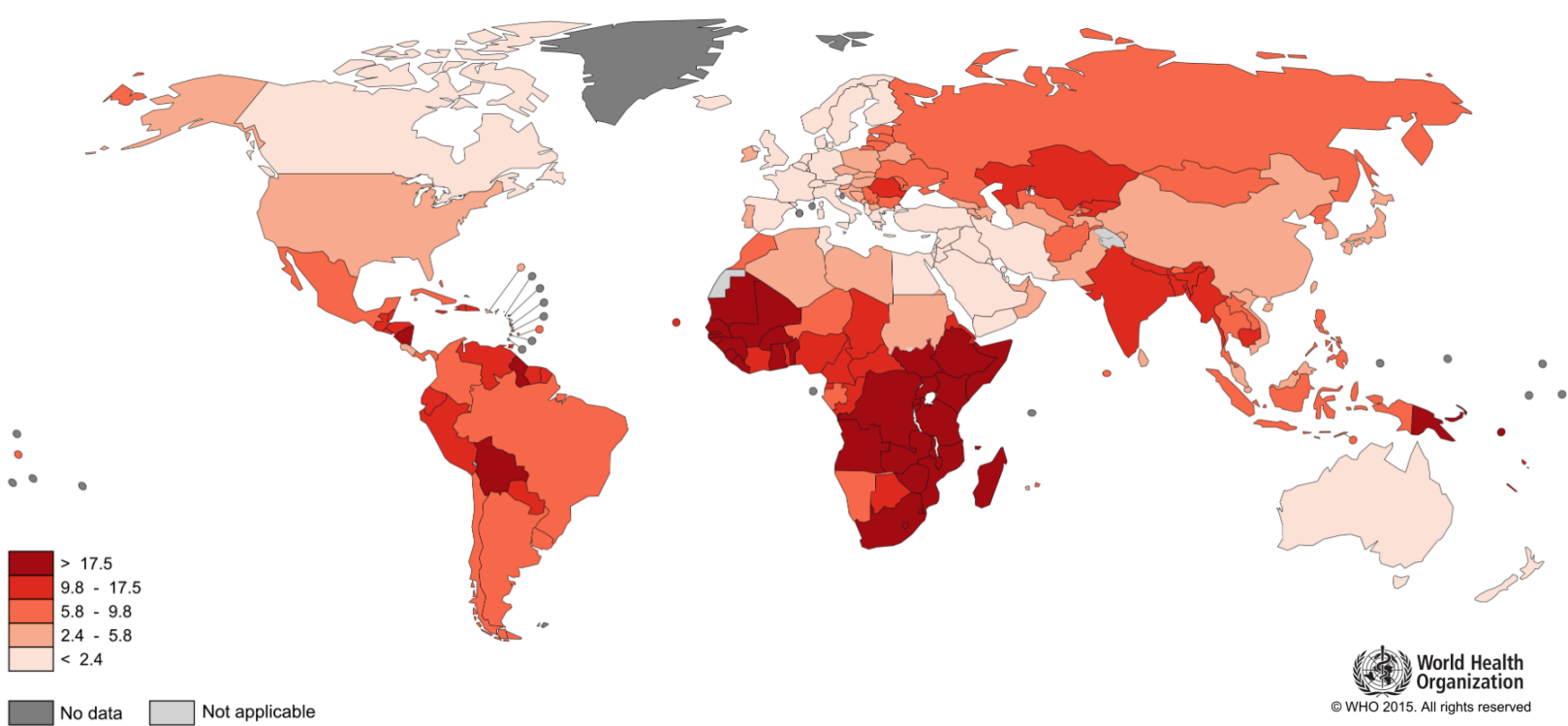
Ties provide actors with access to knowledge and resources, whereas the configurations of these relationships may affect power distribution (e.g. Brass 1992)

Data

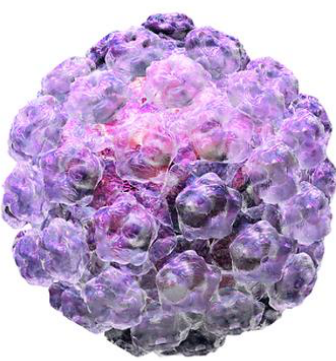
- 4,721 publications from 1980 to 2011 – MEDLINE/PubMed data matched with Scopus (Rotolo & Leydesdorff, 2015)
- Query based on MeSH (Medical Subject Headings): descriptors (uterine cervical neoplasms, uterine cervical dysplasia, cervical intraepithelial neoplasia) and qualifier (diagnosis)
- 3,072 affiliations (harmonisation of 9,806 variations of affiliation names)

The disease

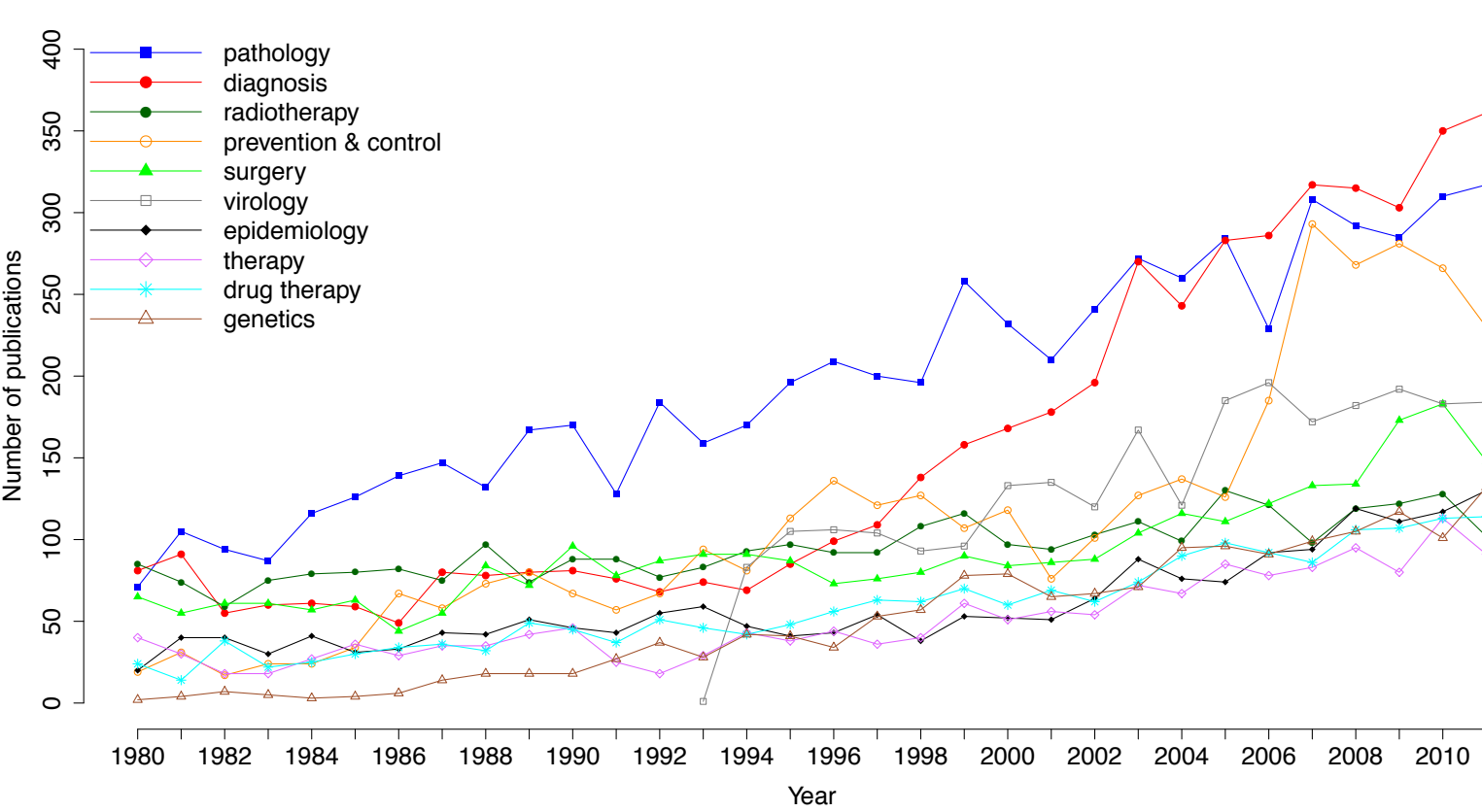
- Cervical cancer: one of the most common cancers among women – about 528,000 new cases and 266,000 deaths each year (WHO 2012)



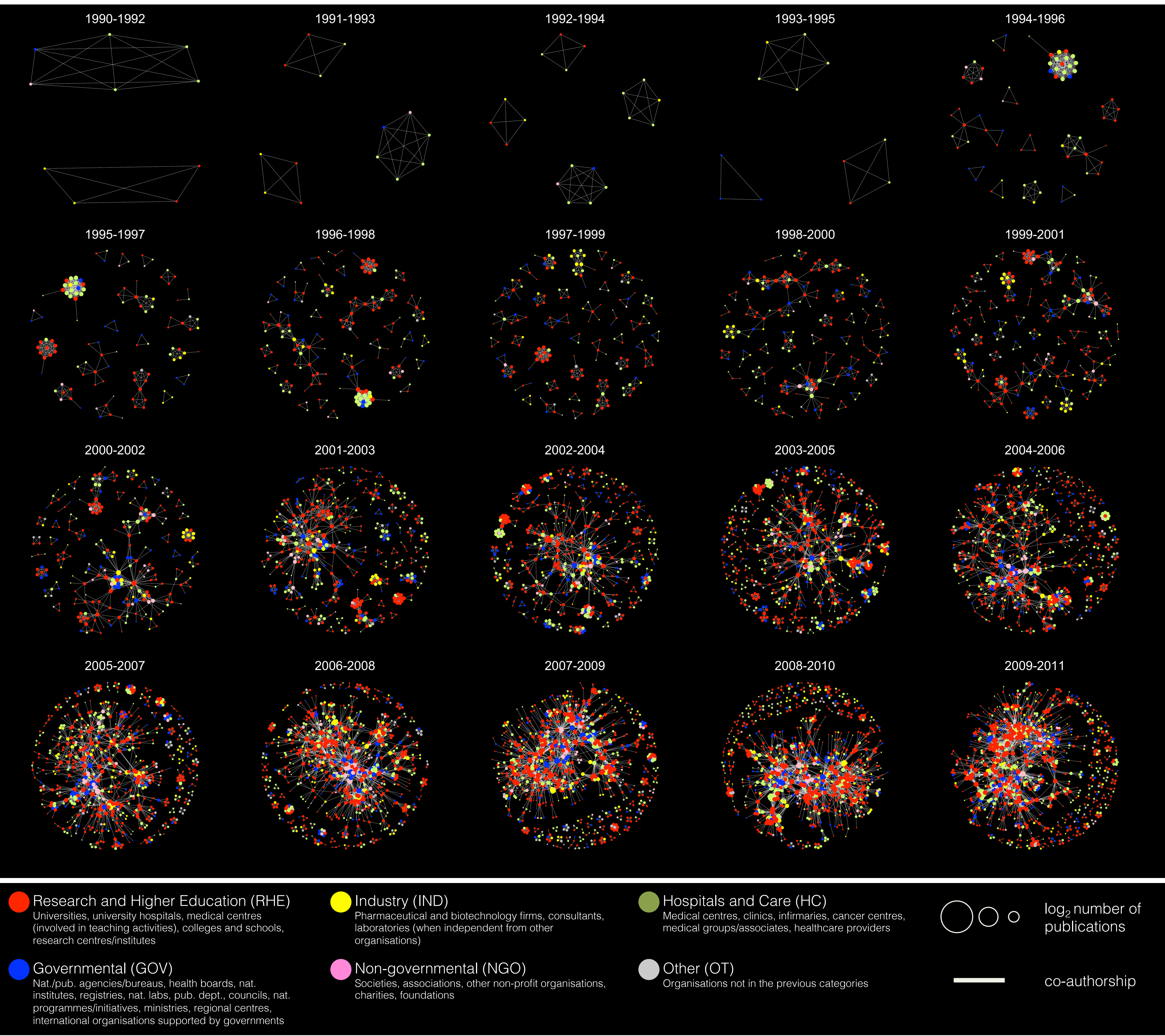
- Human Papilloma Virus (HPV) as its association with cervical cancer



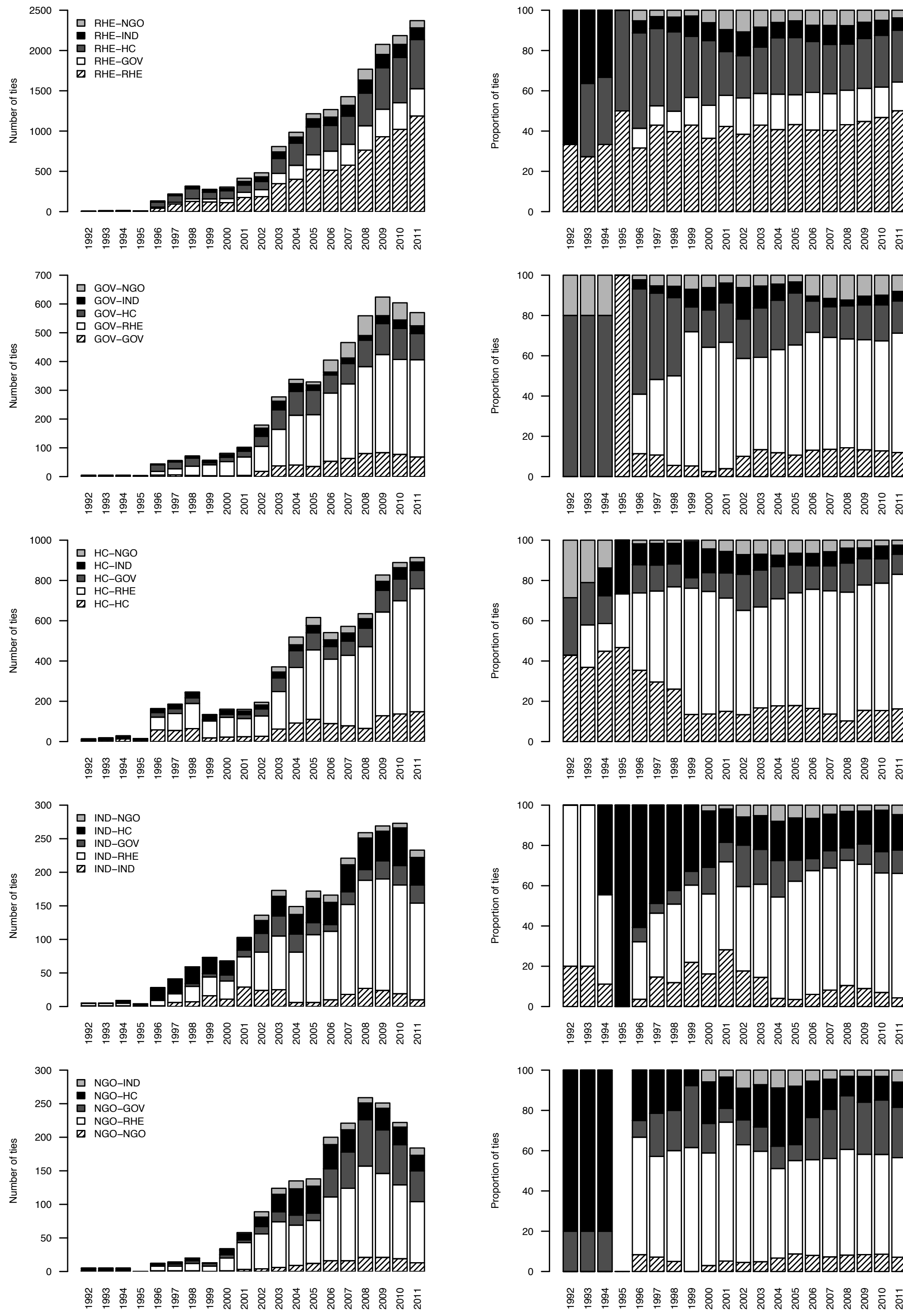
- The emergence of diagnosis: Pap vs. HPV test



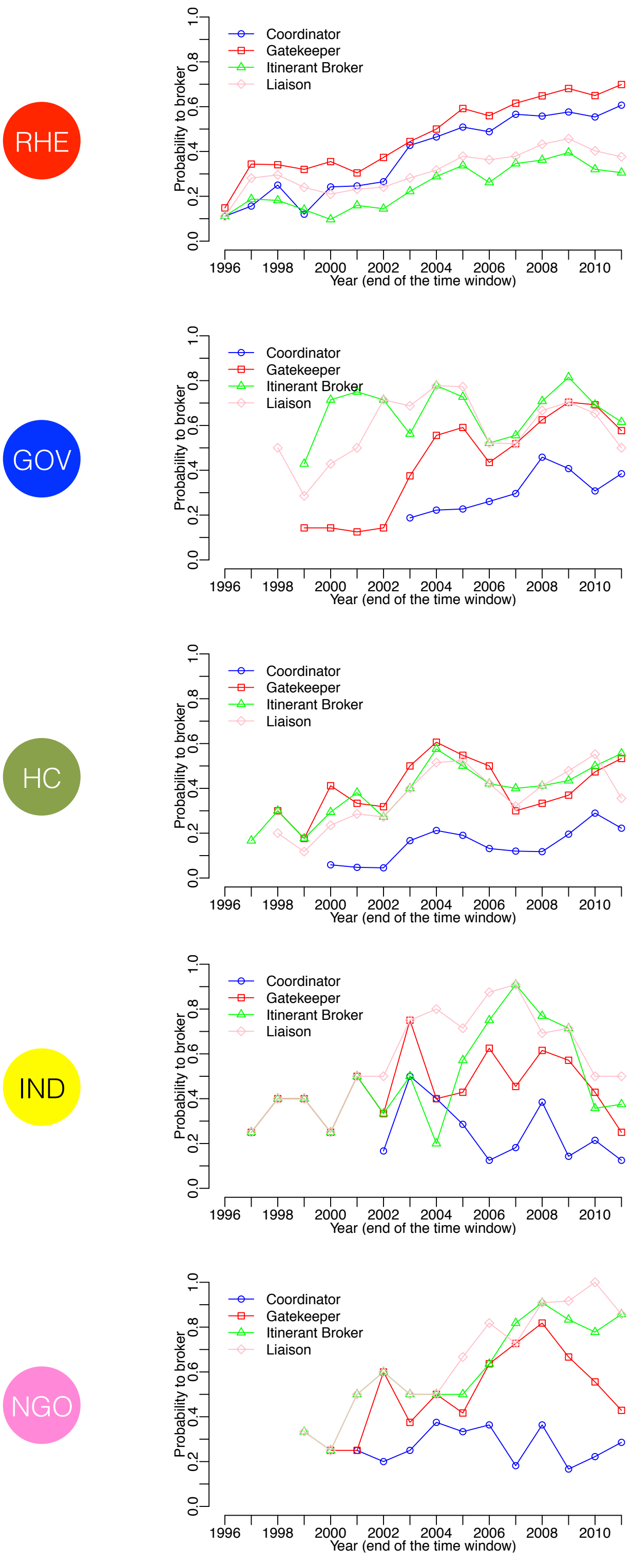
Co-authorship network



Tie formation (dyad)



Brokerage roles (triad)



Findings

- Ties with HC in the early phase of emergence are important for most groups, especially for RHE, IND
- All institutional groups form predominantly inter-group ties, except RHE
- All groups perform the full variety of (‘intra’ and ‘between’ groups) brokering roles to some extent
- The predominant forms of brokering roles played by different institutional groups are relatively stable during the emergence process, although the intensity of brokerage activity varies over time
- NGOs and IND actors play a similar role as liaison-type brokers